

REMARKS/ARGUMENTS

Claims 1-3 and 9-11 stand rejected as being anticipated by US patent No. 6,099,394 (hereinafter referred to as James). Claims 1-7 stand rejected as being anticipated by US patent application No. 2001/0044263A1 (hereinafter referred to as Andideh). In addition, the foregoing references are combined with various secondary references to render obvious additional subject matter claimed by applicant. Reconsideration of the rejections is requested in view of the foregoing amendments and the following remarks.

Claims 1, and 9 have been amended. Claims 1-15 remain pending in the present application.

Regarding any rejection under §102, it is noted that the test for anticipation is whether all the elements and operational relationships of the rejected claim are found within a single prior art reference. There must not be any differences between the claimed invention and the reference disclosure as viewed by a person of ordinary skill in the art. Absent from the reference disclosure of any claim element and/or operational interrelationship negates anticipation under §102.

Claim 1 is directed to a chemical mechanical polishing pad. The pad comprises a groove pattern disposed on a polishing surface of the pad. The groove pattern comprises a repetitive sequence of spaced apart groove pairs. Each of the groove pairs comprises a groove of a first size positioned adjacent to a groove of a second size, wherein the first and second groove sizes are different in size relative to one another. Accordingly, only grooves of different size are adjacent to one another in the groove pattern set forth in claim 1.

James is directed to a self-dressing, polishing pad comprising a high modulus phase and a low modulus phase. See Abstract of James. The specification of James describes in some detail the requirements for making such modulus phases in the polishing pad described by James. More particularly, as described by James, the high modulus phase requires a certain type of material with high modulus particles while the low modulus phase requires a distinct type of material. See for example paragraphs

respectively titled "The High Modulus Phase" and "The Low Modulus Phase" at cols. 3 and 4 of James. Also at col. 11, line 54 et. seq., James describes the requirement of having to fill an indentation (such as a groove) with a composition comprising high modulus material. The foregoing requirements of distinct materials for achieving the high modulus and the low modulus and/or indentation filling requirements, that likely add incremental costs to the polishing pad described by James, are inapplicable to the present invention. Moreover, the flow channels 18 and 20 described by James do not meet the structural and/or operational relationships set forth in claim 1, regarding the repetitive sequence of spaced apart groove pairs. For example, it is not seen that James describes a groove pattern wherein only grooves of different size are adjacent to one another. Anticipation under 35 U.S.C. §102 requires that the identical invention must be shown in as complete detail as contained in the claim. Accordingly, it is submitted that James fails to anticipate or otherwise render unpatentable claim 1.

Andideh purports to describe a method for creating a differential polish rate across a semiconductor wafer. This is inapplicable to the present invention. Moreover, none of the groove configurations in the embodiments illustrated in FIGS. 5a-7 of Andideh meet the structural and/or operational relationships set forth in claim 1, regarding the repetitive sequence of spaced apart groove pairs. For example, it is not seen that Andideh describes a groove pattern wherein only grooves of different size are adjacent to one another. Accordingly, it is submitted that Andideh also fails to anticipate or otherwise render unpatentable claim 1. Thus, the rejection of claim 1 under 35 U.S.C. §102 fails to be supported by both James and Andideh and should be reversed.

Since each of claims 2-8 that depend from claim 1 include the structural and/or operational relationships respectively recited in such independent claim 1, it is also respectfully submitted that the applied art also fails to anticipate or otherwise render unpatentable each of such dependent claims.

It is noted that in connection with dependent claim 8, Muldowney, Bennet 1 (US Pat. 6,2723,806) and Bennet 2 (US Pat. No. 5,984,769), singly or in combination, fail to overcome the shortcomings of James. Accordingly, claim 8 is not rendered obvious by the foregoing combination of references. In connection with dependent claims 4-7,

Doan, fails to overcome the shortcomings of James. Accordingly, claims 4-7 are not rendered obvious by the combination of James and Doan.

Claim 9 is directed to a chemical mechanical polishing system including a carrier for holding and moving a semiconductor wafer during a chemical mechanical polishing process. Claim 9 in part recites a chemical mechanical polishing pad having a groove pattern disposed on a polishing surface of the pad. The groove pattern comprises a repetitive sequence of spaced apart groove pairs. Each of the groove pairs comprises a groove of a first size positioned adjacent to a groove of a second size, wherein the first and second groove sizes are different in size relative to one another. Accordingly, only grooves of different size are adjacent to one another in the groove pattern set forth in claim 9. It is submitted, as discussed above, that James fails to anticipate or otherwise render unpatentable claim 9 and this basis of rejection of claim 9 should be withdrawn.

Moreover still in connection with claim 9, Muldowney, Bennet 1 (US Pat. 6,2723,806) and Bennet 2 (US Pat. No. 5,984,769), singly or in combination, fail to overcome the shortcomings of Andideh. Accordingly, claim 9 is not rendered obvious by the foregoing combination of references and this basis of rejection of claim 9 should be withdrawn.

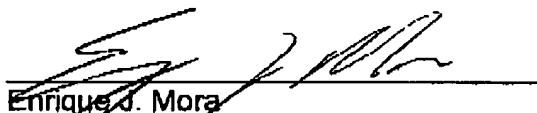
Since each of claims 10-15 that depend from claim 9 include the structural and/or operational relationships respectively recited in such independent claim 9, it is also respectfully submitted that the applied art also fails to anticipate or otherwise render unpatentable each of such dependent claims.

It is noted that in connection with dependent claims 10-15, Muldowney, Bennet 1 (US Pat. 6,2723,806) or Bennet 2 (US Pat. No. 5,984,769), singly or in combination, fail to overcome the shortcomings of James. Accordingly, claims 10-15 are not rendered obvious by the foregoing combination of references. Moreover, In connection with dependent claims 12-15, Doan, fails to overcome the shortcomings of James. Accordingly, claims 12-15 are not rendered obvious by the combination of James and Doan.

It is respectfully submitted that each of the claims pending in this application recites patentable subject matter and it is further submitted that such claims comply with all statutory requirements and thus each of such claims should be allowed.

The Examiner is welcomed to call the undersigned if clarification is needed on any aspects of this Reply/Amendment, or if the Examiner believes a telephonic interview would expedite the prosecution of the subject application to completion.

Respectfully submitted,



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